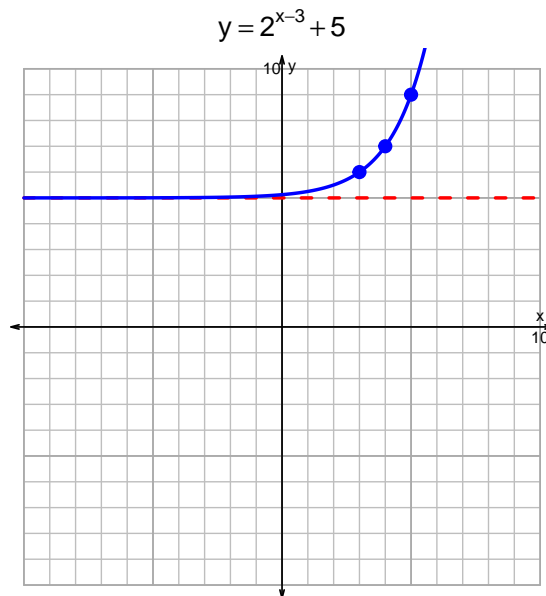
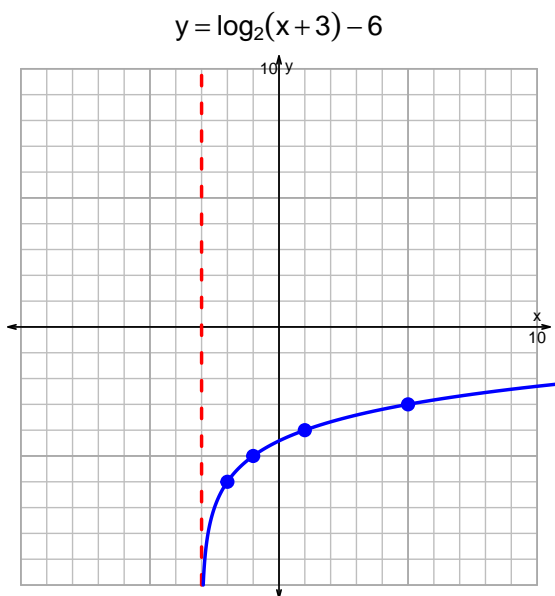


Name: _____

Date: _____

s18QUIZ: EXP LOG (SLTN v220)

1. Graph $y = \log_2(x + 3) - 6$ and $y = 2^{x-3} + 5$ on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$29 = \left(\frac{7}{4}\right) \cdot 10^{-5t/3}$$

Divide both sides by $\frac{7}{4}$.

$$\frac{29 \cdot 4}{7} = 10^{-5t/3}$$

Take log, base 10, of both sides.

$$\log_{10} \left(\frac{29 \cdot 4}{7} \right) = \frac{-5t}{3}$$

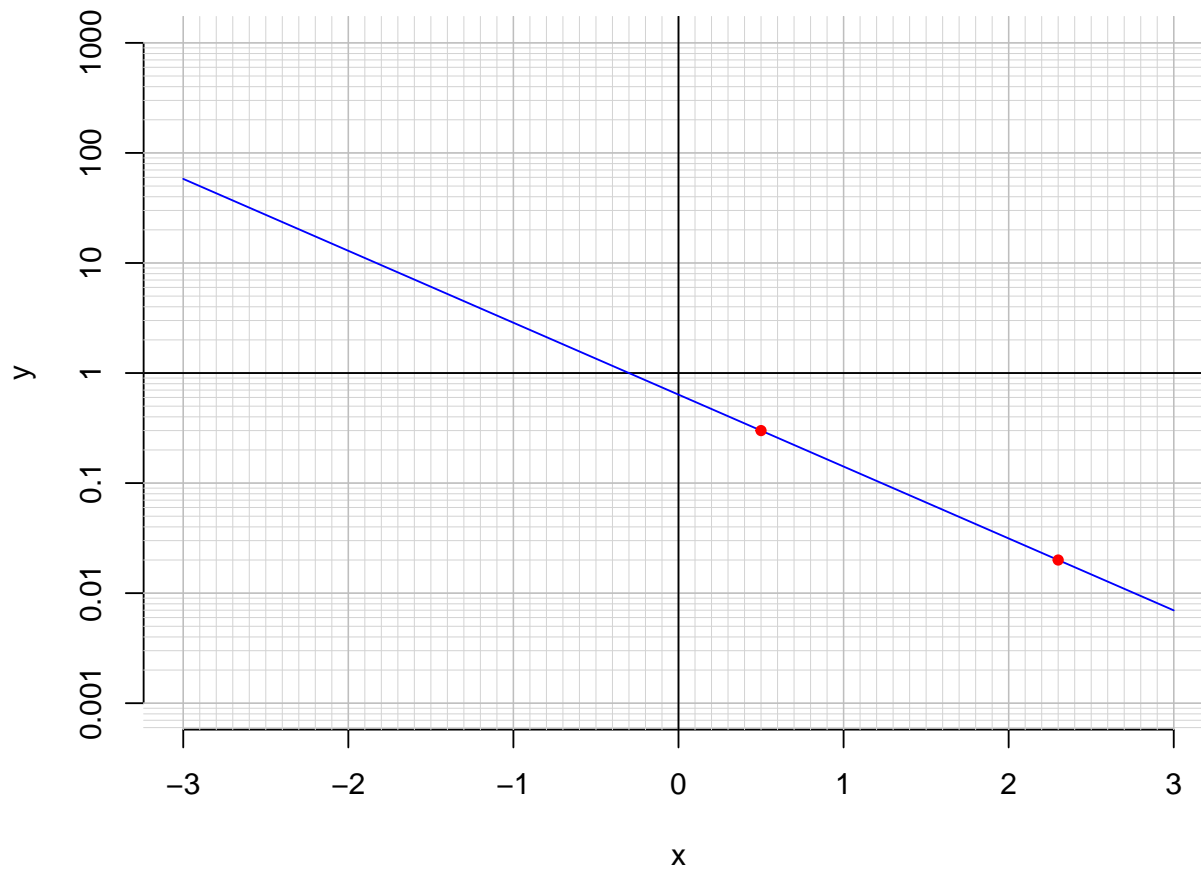
Divide both sides by $\frac{-5}{3}$.

$$\frac{-3}{5} \cdot \log_{10} \left(\frac{29 \cdot 4}{7} \right) = t$$

Switch sides.

$$t = \frac{-3}{5} \cdot \log_{10} \left(\frac{29 \cdot 4}{7} \right)$$

3. An exponential function $f(x) = 0.637 \cdot e^{-1.5x}$ is graphed below on a semi-log plot.



- a. Using the plot above, evaluate $f(0.5)$.

$$f(0.5) = 0.3$$

- b. Express $f^{-1}(x)$, the inverse of f .

$$f^{-1}(x) = \frac{-1}{1.5} \cdot \ln\left(\frac{x}{0.637}\right)$$

- c. Using the plot above, evaluate $f^{-1}(0.02)$.

$$f^{-1}(0.02) = 2.3$$